

Discrete flavour and CP symmetries in light of JUNO and neutrino global fit

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Working within the reference three-neutrino mixing framework, we confront the lepton mixing predictions derived using non-Abelian discrete flavour and CP symmetries with the first JUNO data on the solar neutrino mixing parameters $\sin^2 \theta_{12}$

and with the results of the latest global neutrino data analysis. We focus on symmetry breaking patterns for which the lepton PMNS mixing matrix depends only on one or two free real parameters. Performing a comprehensive statistical analysis in each of the considered cases, we report the best fit values, the 3σ C.L. allowed ranges and the χ^2 -distributions of the lepton mixing observables - the three mixing angles and the three CP-violation phases. We find that the JUNO measurements can disfavour or rule out a number of the mixing patterns associated with specific types of breaking of the discrete flavour and CP symmetries.

The synergy of JUNO, DUNE and T2HK data can provide an exhaustive test of the considered approach to lepton mixing based on non-Abelian discrete lepton flavour symmetries combined with the CP symmetry.

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